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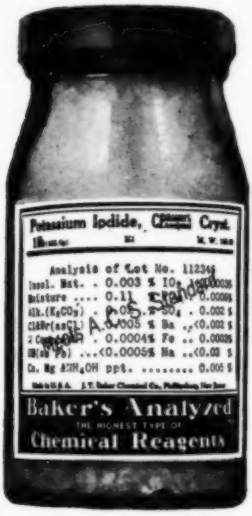

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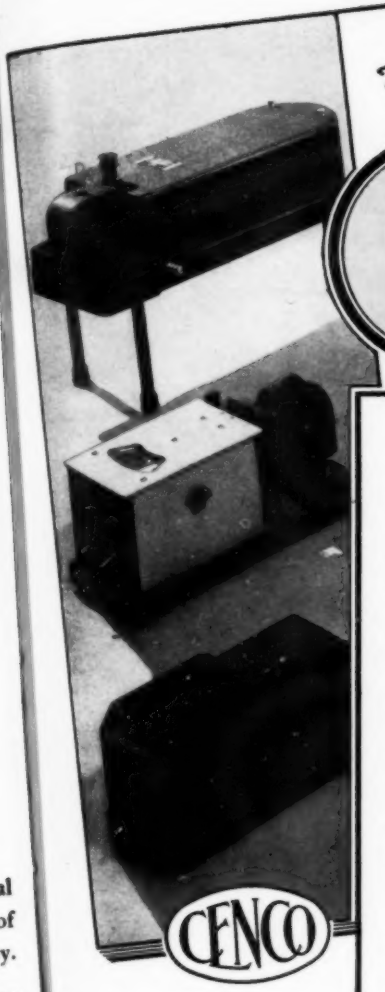

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The Chemist

Publication of

THE AMERICAN INSTITUTE OF CHEMISTS, INC.
60 East 42nd Street, New York 17, N. Y.

Volume XXV February, 1948 Number 2

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Entered as second class matter April 8, 1936, at the Post Office at New York, N. Y., under Act of August 24, 1912. Issued monthly at 60 East 42nd Street, New York 17, N. Y. Subscription price, $2.00 a year. Single copy, this issue $0.25. Copyright 1948, by THE AMERICAN INSTITUTE OF CHEMISTS, INC.

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Our Medalist

DR. CHARLES Allen Thomas, F.A.I.C., executive vice president and technical director of Monsanto Chemical Company, St. Louis, Missouri, has been unanimously selected to receive the 1948 gold medal of THE AMERICAN INSTITUTE OF CHEMISTS. The award was made in recognition of his work in the development of atomic energy, his leadership in research, particularly in synthetic resins, his administrative ability, and his encouragement of basic research in the United States.

The medal will be presented to Dr. Thomas at the Silver Anniversary meeting of the A.I.C., to be held in New York, N. Y., on Friday, May 7, 1948. (See page 60.)

Dr. Thomas, one of the key figures in the development of atomic energy, was born in Scott County, Kentucky, February 15, 1900. He was graduated from Transylvania College and Massachusetts Institute of Technology with the degrees of B.A., M.S. and D.Sc. Washington University, of St. Louis conferred the D.Sc. degree on him in 1947.

In 1923, he joined General Motors Research Corporation as research chemist and worked on anti-knock materials for motor fuel and the extraction of bromine from sea water. This work contributed to the successful program which resulted in the production of the tetra-ethyl lead compound that is used in motor fuels known as "ethyl gasoline".

Later, he was transferred to the Ethyl Gasoline Corporation as research chemist. In 1926, together with his associate, Dr. Carrol A. Hochwalt, F.A.I.C., he organized the Thomas & Hochwalt Laboratories at Dayton, Ohio, specializing in consulting research work for industrial organizations.

In 1936, the laboratories were acquired by Monsanto Chemical Company, and Dr. Thomas became central research director of the company, and director in 1942. His work centered mainly along the line of synthetic resins from petroleum hydrocarbons, the formation of diolefins, olefins, and aromatics by the pyrolysis of hydrocarbons, plastics, and the synthesis of various aliphatic compounds.

In 1945, Dr. Thomas became vice president and technical director of Monsanto and a member of its four-man Executive Committee. On May

27, 1947, he was elected executive vice president.

During the late war, Dr. Thomas was one of the principal scientists in the development of the atomic bomb, having had charge of the final purification and metallurgy of plutonium.

Monsanto contracted to operate the Clinton Laboratories at Oak Ridge, Tennessee, on July 1, 1945, and Dr. Thomas was made project director. After the war, he continued in charge of the laboratories as work was begun to convert atomic energy to peacetime uses. Monsanto continued as operator of Clinton Laboratories until January 1, 1948, when the University of Chicago took over. Currently, Monsanto has the contract to operate an Atomic Energy Commission facility at Miamisburg, Ohio.

During the war, Dr. Thomas also had a leading role in the development of catapult rockets to get American models of German robombs into the air, and other developments.

Dr. Thomas was one of the small group of scientists to receive the Medal for Merit from Secretary of War Robert P. Patterson in March, 1946. In that same year he was one of the five co-authors of "A Report on the International Control of Atomic Energy", which was prepared for the Secretary of State's Committee on Atomic Energy. The report proposed a master plan for the international control of atomic energy. Other board members were David E. Lilienthal, chairman; Harry A. Winne, Dr. J. R. Oppenheimer, and Chester I. Barnard.

In 1947, Dr. Thomas was awarded the Industrial Research Institute medal for outstanding achievement in the administration of industrial research.

On January 1, 1948, he took office as president of the American Chemical Society for a one-year term.

The author of numerous scientific papers and the signer of a number of United States and foreign patents, principally in the field of organic chemistry, Dr. Thomas wrote, "Anhydrous Aluminum Chloride in Organic Chemistry," which became standard in that field.

He is a curator of Transylvania College and a trustee of the John and Olga Queeny Educational Foundation. He is a director of the American Chemical Society, a Fellow of the American Association for the Advancement of Science, a member of the Institute of Chemical Engineers, a director of the Board of Governors of the National Farm Chemurgic Council, a member of the Board of Editors of the American Chemical Society Monographs, a Fellow of the Chemical Society of London, and a Fellow of The American Institute of Chemists.

The Role of Government in Research

Dr. Gustav Egloff, F.A.I.C.

Universal Oil Products Company, Chicago, Ill.

(Presented before the National Association of Manufacturers, Dec. 5, 1947)

OUR government is already spending $625,000,000 a year on research and development, exclusive of atomic energy, and it is strongly recommended by Steelman that twice that amount be spent. Before discussing the role of government in research, it is necessary to consider the more pressing problems concerning research today.

The first of these is a lack of scientifically trained personnel. Little can be gained from spending more money on research unless there is adequate high quality manpower to use it. It is important to note that in answer to the question, "What would you say is the main reason major research has had to be neglected?", lack of personnel was given more frequently than any other reason by the scientists interviewed in preparing the Steelman report. As a result of our short-sighted draft policies during the war, the nation is lacking about 90,000 Bachelors of Science and 5,000 Doctors of Science who should have graduated. Even during Peace time, we are not sure of getting all of the cream of scientific brains because a good scientific education is a long and costly process—out of reach of the average family budget. The alleviation of this shortage in scientists will take a maximum of encouragement from government, industry, and educational institutions.

The second problem is the need for expanding studies in basic science. It is estimated that only $110,000,000, less than ten per cent of the $1,160,000,000 spent on research in 1947, was allocated to basic research. In view of the fact that basic research supplies the knowledge which makes applied research possible, this amount seems dangerously small. A large proportion of basic research is carried on by universities, which are not receiving increased support at present because would-be donors have had their incomes taxed away. Industry, although contributing to basic research in both its own laboratories and at universities, must primarily devote its facilities and manpower to applied research. Basic research is one field

which could well be stimulated by government.

Without endangering either freedom of scientific thinking or our system of free enterprise, the government can make grants for fellowships to promising students and grants for carrying on basic research. Such a program must, however, be set up under an administrative agency which will be free from political domination.

During the past several years many bills concerning governmental support of science have been drafted by our congressmen. Many of these contained undesirable features which would place government in competition with private industry, cause duplication of work already conducted by government, bring about loss of academic freedom, and be conducive to a high degree of political patronage. The Fullbright Bill, S 493, for example, provided for government help in the commercialization of inventions. It is a direct infringement upon the rights and duties of private enterprise. In its revised version, the bill provides for duplication of work carried on at present by the Patent Office. Such legislation would accomplish no good and would result in wasteful expenditures.

The proposals for a National Science Foundation have varied greatly in character. Many have contained sections which provided for greater and greater control over industrial research by government both through directly competitive research and through patent provisions. Moreover, some of them contained "pork barrel" provisions for the distribution of funds which would play into the hands of ambitious office-seekers. The administration of the Foundation was, in many cases, put into the hands of the politically prominent rather than the scientifically qualified. On the contrary, the Smith Bill, S 526, passed by the Congress and vetoed by President Truman provided for a Foundation directed by a board of top flight scientists for the distribution of funds for research and for the establishment of fellowships for students. The bill was carefully drawn up with the advice of the leading scientists of the country after two and one-half years of extensive hearings and debates.

In the next session of Congress, more bills for the establishment of a National Science Foundation will undoubtedly be presented. A suitable bill can hardly be drawn which will incorporate the desirable features of the Smith Bill and at the same time overcome the President's objections. The Foundation as provided for by the Smith Bill would be operated by eminent scientists free from political domination and responsible only to the Congress. The President considers this form of operation to be defective as it would place the expenditure of public funds and administration of government functions in the hands

of a group of private citizens. His conclusion that the Foundation should consist of a full-time, politically appointed administration utterly defeats the scientific spirit of the Smith Bill.

That the general principles of a non-political Science Foundation are not inconsistent with our government is attested by the successful operation for more than thirty years of the National Advisory Committee for Aeronautics. It has an administrative organization similar to that proposed in the Smith Bill and is free to initiate its own program of research according to its best judgment.

In considering any new science legislation, a study of governmental research activities is enlightening. Of the $625,000,000 now being spent by government, about $500,000,000 is devoted to the budgets of the Armed Forces. Military research is a natural function of the government to protect its citizens and is rightfully under governmental supervision. Of the remaining $125,000,000, however, only $20,000,000 is being spent for basic research. Government is spending $105,000,000 on applied research and development. It would seem that we taxpayers may be paying for competition with ourselves. The role of government should be essentially in the field of basic research. Further ventures of the government into research, such as a National Science Foundation, should be directed along that course.

Distribution of federal research is such that about $425,000,000 is spent on contracts with university and industrial laboratories, while $200,000,000 is used in government laboratories. For the speedy conclusion of applied research projects necessary for national defense, this policy of contracts has been effective. The best available men and laboratories have been utilized. A different line of approach is necessary to carry out basic research. Investigations of a fundamental character should not be on a contractual basis, but outright grants should be made so that scientists will not be hampered by the mass of detail that is a part of contracts. The administration of such grants will require the direction of scientists who understand research and its implications. Otherwise the funds of a National Science Foundation would just be a new gravy train for the indolent and conniving elements of society.

One of the important functions which a National Science Foundation could perform is that of eliminating duplication of governmental work. The Smith Bill provided for an Interdepartmental Committee to correlate data on Federal research activities and to make recommendations to eliminate duplication. It is significant that the President objected to chairmanship of this committee going to the non-political Director who "would be the man primarily charged with

the performance of functions which are peculiarly within the scope of the President's duties."

To summarize briefly, Governmental participation in research outside of national defense should be limited to the field of basic research. Industry now spends $450,000,000 a year on research and development. Our country has industrial laboratories which are constantly being expanded to carry out applied research and development. The expansion of government into the field of basic research could be accomplished effectively through a National Science Foundation. This Foundation should have as its purpose the distribution of funds for (1) fellowships to build a reserve of scientific manpower, and (2) basic research work. The Foundation should be directed by high caliber scientists who have a mature viewpoint on research. The members of the Foundation should be free from any political domination and funds should be allocated without regard to politics. Expenditures during the early stages should be made cautiously to discourage abuse by seekers of easy money. Loopholes which would provide for the encroachment of government upon industrial research and academic freedom must be entirely absent. Government must stay out of industry. Government can perform services which are not within the scope of industry under our present tax set up. In such a capacity, a National Science Foundation is needed at this time. The national income is $175,000,000,000 yearly, of which only 0.6 percent is expended yearly on research and development—a far too little expenditure for this purpose.

Award for Outstanding Achievement in Analytical Chemistry

C. G. Fisher, president of Fisher Scientific Company and of Eimer and Amend is financing an award to encourage outstanding contributions to analytical chemistry. The Board of Directors of The American Chemical Society has accepted administrative responsibility. The first award which consists of $1,000 and an original etching, will be made at the fall meeting of the American Chemical Society in September, 1948.

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Opportunities in Chemical Market Research

John P. Duane

Director, Market Research, Interchemical Corporation, Finishes Division
Newark, N. J.

BEFORE it is possible to consider fully the opportunities open to the chemist, and the personal qualifications which he should have, in the field of chemical market research, it is necessary to define the function of market research in the chemical industry. Chemical market research is a fairly recent development and there is still a considerable diversity of opinion as to what this type of work entails. Since such conditions naturally influence the character and thinking of the individual who is interested, some outline of the subject's scope is in order.

Broadly speaking, market research is the attempt to use the tools of research developed by the natural sciences, already applied in industrial production, as an aid in solving marketing problems. Although we are apt to use the term "research" loosely, the dictionary reveals that it is a "studious inquiry or examination; a critical and exhaustive investigation or experimentation, having for its aim the discovery of new facts and their correct interpretation." In the words of Abraham Lincoln, "If we can first know where we are, and whither we are tending, we could better judge what to do and how to do it."

Market research is not a substitute for such functions as sales promotion, technical service, or technical research, and the line of demarcation must be clearly drawn to separate it from these and similar activities; it cannot be expected to take over all these phases of the company's business. For instance, the advertising department will certainly be helped by market research, but the duties of the market researcher should not normally include promotional work. Nor is market research a substitute for product development; it merely illuminates the way for product development, and it is only a small but important part of development work in general.

The Function of Market Research

However, it is the function of research to provide information on a great variety of problems. In the chemical business, as in any other, "a man's judgment is not better than his information." Reports must be

prepared, which are not in the form of a detailed "catch-all" but rather a straight-to-the-point fact and figure presentation. Facts are the sound foundation on which a more successful business can be built. Through them, waste in distribution can be eliminated and improved marketing policies and practices instituted. Market research tries to get the facts first, then act. It is very much like putting together the pieces of a picture puzzle. It may be impossible to get all the pieces—many may be the well-guarded property of other companies—but it is necessary to secure those facts or pieces which are available.

We begin with the sources of information in our own company, such as the sales, accounting, and manufacturing departments. The sales force, particularly, must be closely consulted because it is right there "on the ground with an ear to it." Besides data obtainable from one's own company, outside sources are used extensively in piecing together the puzzle to make the whole picture. These secondary sources, the facts available from the published literature, cannot be overlooked, for generally a valuable study and report is the result of utilizing all sources of data.

The Demand for Researchers

Chemical market research has undergone considerable expansion in recent years so that it has not only shared in the growth of the chemical industry, but it has indeed exceeded its rate. The Chemical Market Research Association, which is probably the professional organization most closely identified with this new line of endeavor, has blossomed from a pre-war budding membership of perhaps a score, to a fully developed association of over one-hundred and fifty members and it is still growing. The entrance of nearly all of the large oil and rubber companies into the distribution of industrial organic chemicals has contributed to the demand for market research specialists—the oil companies to find outlets for fraction materials which might otherwise be either waste by-products or entirely lost, and the rubber companies because of their new-found means of synthesis as well as their interest in rubber chemicals.

In addition, many concerns outside of the chemical producing industry proper, such as advertising and market research agencies, consultant and engineering firms, have found it necessary to employ chemically trained men to help them solve marketing problems and to give them a vital, close relationship with the industry which they serve. The combination of these factors, together with the increased competition both from within and without the industry which leads to efforts to improve distribution efficiency, has resulted in a greatly enlarged demand for trained

chemists to engage in market research for these related businesses.

For much the same reasons, the field has become one of increasing importance to the chemical industry itself. Whereas, the results of a survey (published in 1945) among twenty-five of the leading middle-size companies manufacturing chemical products indicated that only one had an established market research department, undoubtedly many, if not all of them, are by now employing market research, at least to some degree.

The Personal Qualifications Needed

What are the educational background and personal qualifications desirable for a chemist to have who contemplates entering this field? It is practically a hypothesis that he should have a bachelor's degree in chemistry or chemical engineering. Probably the most acceptable additional education would be a master's degree from a business school or at least graduate courses in marketing, statistics, and possibly, economics and accounting. The latter scholastic training, however, may be partially or even entirely offset by a sufficient period of actual experience in the sales or distribution end of some commercial enterprise. This educational program might be reversed so that the chemical knowledge is acquired after the marketing training, but the success of this procedure depends more on the individual concerned, since it is of somewhat greater difficulty and takes more time.

Some of the more desirable personal qualifications of the individual who becomes engaged in chemical market research will develop only after his scholastic background has been completed and he has had an opportunity to familiarize himself with the field and to gain experience and interest in the work. For instance, it is essential that he have not just a passing regard for sales, but that he be unquestionably sales-minded. This is a necessity since the object of all market research is sales, and improved sales must result or market research will not pay its own way. The man in market research, therefore, must possess sufficient imagination to foresee market possibilities with potentialities for sales.

At the same time he should be research minded and have a scientific approach to marketing problems in order to unearth all of the facts, gather them together, and arrange them for presentation, analysis, and solution. Moreover, he should like doing both of these somewhat diverse things to a not too varying degree, and thus such an individual is likely to be that rare type who has the capacity for being both an extrovert and an introvert. He must be well aware of and maintain an interest in what is going on and yet be able to withdraw into his shell when an accurate factual analysis is needed.

Since information must be gathered from both associates and outsiders, it is apparent that he must possess the type of personality necessary for making contacts both within and without the company.

The Financial Situation

There are ample opportunities in chemical market research available to those who have these inclinations and personal characteristics. An individual with such ambitions and tastes will also derive pride and pleasure from satisfying them in a market research position. A reasonable financial reward should be expected for assuming the responsibility of a market research department which is able to contribute to the sales well-being and growth of the company. The salary is naturally greater, the larger the concern. Though it will probably never equal that of the firm's star salesman, this is partially compensated for by the fact that the individual qualified to do chemical market research would probably never be this super-salesman. If his temperament did permit it, he undoubtedly should not have undertaken market research in the first place.

One interesting factor, which might be taken into account by anyone considering this work, is that properly established market research, at least in the case of medium and large-sized companies, is even more of a necessity and requires more personnel to conduct it during periods of economic recession than during boom times when oversold conditions prevail. The writer has personally had experience with two cases where relatively large departments, which had grown up in the lean years following 1929, had to be curtailed in personnel by almost half in the years during the late war when no more sales expansion could take place without increased production facilities.

Disadvantages

The previous observation is predicated upon a properly organized department. Its function and abilities must also be adequately recognized by the management. One pitfall of which the would-be market researcher should beware is those companies who consider market research a luxury and treat it as such by eliminating it the moment the going starts to get a bit rough either financially or saleswise. The new advocate should make sure that the company of his choice is well aware of the importance of the market research program and that the decision to undertake it on a sound basis has been made. This assumes a top management that is research-minded and wants the facts on which to base decisions, as well as a sales management that is sufficiently open-minded to accept the facts thus uncovered and to follow through in the direction indicated by this research.

One other misfortune, to which the chemical market researcher may

fall heir, comes as a result of the fact that in the organization his relationship to the sales effort is indirect rather than direct. Since the absolute returns from market research, no matter how well conducted, can rarely be measured alone in view of the many other varied and contiguous factors contributing to new and increased sales, he will have to bear this in mind in determining whether he is receiving an appropriate share of the financial rewards that result. This difficulty is further complicated by the present lack of any compensation standards or yardsticks in such a recent field of endeavor as chemical market research. Therefore, an alert incumbent may have to find himself at times in the unenviable position of the "squeaky wheel" through no fault of his own nor that of his superiors.

Advantages

However, if the individual is of the type who meets the psychological criteria heretofore set forth, he may well offset the less desirable considerations with some of the other forms of satisfaction which he will derive. The opportunities for promotion are just as great as in any other position in the management of which he is a part, and they are probably greater than most because of the broad perspective, which he will obtain, of the company's operations as a whole, particularly the sales end. He may also rest assured that he is pioneering in a field which has become and will continue to become of increasing importance, and as such it will lead to greater rewards over the passage of time.

Bowman Heads New Mellon Institute Department

Dr. Edward R. Weidlein, F.A.I.C., director, Mellon Institute, announces the establishment there of a Department of Research in Physical Chemistry, under the headship of Dr. John R. Bowman, F.A.I.C., which will conduct fundamental investigations in its domain for professional and public benefit. It will supplement the Institute's work in pure science, carried on since 1911 and formally organized under the Department of Research in Pure Chemistry in 1926, and the Department of Research in Chemical Physics in 1946.

Dr. Bowman has distinguished himself in applied mathematics, particularly as employed in the analysis of chemical engineering problems, and in petroleum chemistry, especially by his original work on distillation. Born in New York, N. Y., in 1910, he was educated at the University of Pittsburgh (Ph.D., 1934) and at the California Institute of Technology. Since 1935 he has been at Mellon Institute, on the multiple fellowship of the Gulf Research and Development Company, holding the grade of Senior Fellow from 1944.

Annual Meeting Date Changed

Please note that the date of the Annual Meeting of The American Institute of Chemists is changed to Friday, May 7th.

This change is made so that we can meet jointly with the New York Section of the American Chemical Society, on that evening, at our banquet and medal award to Dr. Charles A. Thomas.

Alien Patents

The Office of Alien Property will make available to industry some 6000 patents now held by corporations in which the government has a controlling stock interest under the Trading with Enemy Act.

The Tennessee Products and Chemical Corporation announces that, effective January first, it is operating the plant of Southern Ferro Alloys Company in Chattanooga (which it acquired in May) as its Southern Ferro Alloys Division.

Dr. Robert S. Aries has been appointed adjunct professor of chemical engineering at Polytechnic Institute of Brooklyn, N. Y.

Silkes with Pennsylvania Salt

Bernard Silkes, M.A.I.C., formerly with Titanium Alloy Manufacturing Company, Niagara Falls, N. Y., is now development chemist at the Pennsylvania Salt Manufacturing Company's plant at Easton, Pennsylvania.

The City College of New York is offering evening courses on labor and personnel management for the Spring term of 1948. Information may be secured from the Evening and Extension Division of the College, 17 Lexington Avenue, New York 10, N. Y.

Dr. Johan Bjorksten, F.A.I.C., president of Bjorksten Research Laboratories, Chicago, Ill., spoke January 12th before the Plastic Wall Tile Manufacturers Institute meeting in Pittsburgh. His subject was, "Improvements in Surface Characteristics of Plaster Tile."

Dr. Bernard L. Oser, director of Food Research Laboratories, Inc., Long Island City, N. Y., addressed the Baskerville Chemical Society of City College on December 11th, on opportunities for analytical experience in the vitamin field.

Incompetents Injure the Profession

Henry Eckhardt, F.A.I.C.

Professional Engineer, Synochem Corporation, New York, N. Y.

("Incompetent" can be applied to those persons who lack basic knowledge, professional consciousness, a sense of ethics, or the ability to improve with experience.)

THE RECENT paper by C. P. Neidig, M.A.I.C., in the January issue of THE CHEMIST, called attention to the lack of confidence that management has in the chemist, as evidenced by the practice of keeping chemists in the dark about the aims and purposes of projects initiated by management. He has well expressed the handicap under which chemists frequently find themselves in industry. But the blame for this situation should be directed not toward management, but toward the chemist. In fact, everything that is wrong with chemistry as a profession is due to the chemist himself because he tolerates these evils.

Unfortunately, the typical chemist is not aware of these deficiencies in himself; moreover, as shown by the replies to the latest survey of the profession made by the Amrican Chemical Society[1], sixty-three per cent did not see the need for any improvement in the chemical profession!

1. *Chemical & Engineering News*, Vol. 25, No. 7, Feb. 17, 1947.

Popular Definition of Chemist Is Too Inclusive

Elsewhere it has been said, that the first thing that must be done in a discussion is to define the principal terms. In the definition of the term "chemist" we have the clue to the problem of the chemist as a professional man. The definition of "chemist" so far as the public is concerned, appears to be as follows: "Chemist, n. Anyone calling himself a chemist."

The writer is well aware that there is a large number of men and women who are fine chemists; but to the public and some management, too often yon laboratory technician, who cannot mix a batch of lipstick without spilling most of it on his butcher apron, is also a chemist. In other words, the term chemist is popularly confused to mean occupations involving chemistry, ranging from the perfunctory work of technicians to the creative work of scientists. Since the number of such technicians is legion, is it any wonder that management and the public have frequently shown a lack of confidence in the chemist?

Incidentally, the writer does not advocate the licensing of chemists as a solution to the problem. On the

contrary, the immediate objective is to raise the standards for chemists, and to secure the esteem of the public for chemists; licensing will be in order later. Nothing could hurt the chemical profession more than the initiation of compulsory licensing for chemists before high standards for chemists have been established, since the "grandfather clause" would compel the inclusion of practically everybody into the profession who calls himself a chemist. However, that topic is not the subject of this paper.

Lack of Basic Knowledge

Having defined the principal term involved in the discussion we can now proceed to show why some management does not place much confidence in the chemist. The claim that the chemist is well-informed, certainly is not implied in the definition above; furthermore, the writer maintains that among those who come rightly by the title "chemist", some are mediocre as to knowledge of chemistry itself, to say nothing of ability to apply chemistry to their work.

In the State of New York there is no Board of Examiners to examine chemists in the way that the qualifications of engineers are examined. If there were, it is likely that the proportion of failures in an examination for qualifying chemists would exceed that for engineers. Despite the fact that the engineering examination is taken only by persons showing some evidence of qualification, and who presumably prepared for the examination and take it in the expectation of passing it, only sixty-one per cent of the candidates passed the latest examination.[2]

Incidentally, the claim often heard that these examinations for professional licensing of engineers contain questions on the subject of structural engineering which are outside the province of the chemical engineer and belong to the civil engineer; yet the facts of the matter are that most of the failures for all types of engineers occur in basic engineering, and curiously enough, the greatest percentage of failures occurs among civil engineers. The point is that these statistics show that there is the least qualification where popular belief expects to find the highest.

Similarly, an examination of chemists might disclose that some of them lack a basic knowledge of chemistry, and it would be likely that some would also be deficient in the chemistry of their own specialized field in which they pretend expertness. Could this prognosis account for the reason why nothing is done about grading the chemist? Would too many fall by the wayside?

Lack of Vision

Formal education alone is not the criterion for ability in a chemist. The writer has met chemists with a doctorate from an institution with an

2. Excerpts from report of Dr. D. B. Steinman, Chairman, Professional Relations Committee, Metropolitan Section, A.S.C.E.

outstanding reputation, yet these men were merely living reference books, devoid of creative talents, opinionated, ignorant of other fields, and oblivious to the position of their chosen field in the rest of the world's activity.

Lack of Personal Pride

On the other hand, one meets chemists who are obviously uncultured and who indicate that they possess only a smattering of chemistry. They pride themselves on their eccentricity of dress. Untidyness in clothing and unkempt personal appearance are a mark of their trade. Industry has already created a term to describe one such grade of chemist, the *logoquant*. This term has appeared in advertisements for chemists by employment agencies, and it has nothing to do with the chemistry of polystyrene plastics. Rather it refers to chemists who can perform routine quantitative analyses, and who can perform arithmetical calculations with logarithms.

Lack of Expressiveness

Elsewhere executives in industry have complained about the failure of the chemist to express himself in a way that management can understand. Skill in writing reports is not the forte of many chemists. Their writings abound in technical jargon, and very often they lack the definitive statements which would explain the significance of the report to management. In one case a chemist was insistant that for a certain raw material the iron content should not exceed a specific small percentage, yet he was unable to explain to management what the significance of this limit of the iron content was in terms of the quality of the product. The writer has known control chemists to set arbitrary standards of purity in a product without reference to cost of production or consumer needs.

Lack of Professional and Ethical Values

Among the infrequent times when management meets the chemist is when he is "looking for a job." In a manner of speaking, some chemists grovel before the desk of the personnel manager and say, "I don't care what the pay is, so long as I have plenty of interesting work." It is worth noting that the avocation of chemists such as these is taking a job away from a brother chemist by offering to do the work at lower wages. Such chemists do not have "positions" nor work for "salaries". The writer recalls to what depths his own recompense fell during the depression, when his employer could boast how many Ph.D.'s he turned away each week who wanted to work for nothing! Employers can hire and fire such chemists in a way that they would not dare to do to a workman.

A firm whose advertisements refer to its integrity can lay-off a chemist, after four years of employment, with only two weeks of dismissal pay, without this management suffering any

impairment of its integrity. Apparently, integrity is too precious to be cast before chemists. The chemist when laid off, gives profuse thanks to his quondam employer for a reference, but he never gives a thought to inquiring into the references of his potential employer.

There is no need to appeal to management to mend its ways and to give its fond recognition to the chemist. Considering all these things, is it surprising that management does not always repose confidence in the chemist? It is about time that the chemist realized that the only one who can help him is himself.

The question is: Will he help himself?

Croll-Reynolds Celebrates 30th Anniversary

More than one-hundred employees, company and factory executives, and old friends of the company were present December 10th at a dinner in the Hotel Commodore, New York, N. Y., given in honor of Samuel W. Croll and Philip E. Reynolds on the occasion of the thirtieth anniversary of the founding of Croll-Reynolds Company, manufacturers of steam jet vacuum and vacuum refrigeration equipment.

Both Croll and Reynolds were pioneers in steam jet vacuum equipment before they formed their own company in 1917. Seeing possibilities in what was then a mechanical novelty,

Philip E. Reynolds
Samuel W. Croll

each resigned from the Alberger Pump and Machinery Company to manufacture their own equipment. Under their leadership the company grew to an organization of over one hundred and twenty-five persons, including production employees.

David H. Jackson, F.A.I.C., sales manager, was toastmaster for the evening. Company employees presented Mr. Croll and Mr. Reynolds each with a solid gold Evactor containing three ounces of pure gold, miniatures of the smallest commercial Evactor, which in actual production weighs about forty pounds.

S. C. Johnson and Son, Inc., are now building a fifteen-story futuristic, wax research tower as part of the new laboratory at Racine, Wisconsin. J. Vernon Steinle, F.A.I.C., is research and development director.

Progress in Support of New York Municipal Chemists

IN THE October issue of THE CHEMIST, we reported the efforts which had been made to secure action in the matter of the present unprofessional classification and salaries of the New York City municipal chemists. Since then, several new developments offer promise for the future.

Dr. Foster D. Snell, president, A.I.C., in a recent press interview stated: "Both government and industry today recognize the importance of chemists to the health and well-being of the nation, but we have found that New York City's Civil Service schedule for professional chemists, prepared in 1937, and still in effect, failed at that time to evaluate chemists properly and classified them in some cases below the salary position of semi-professional workers. Today this schedule gives New York's chemists basic salaries in general less than half those paid by industry and substantially less than those paid by the Federal government.

"These chemists, educated and experienced, perform necessary services for the health and protection of the people of our city. They maintain the purity of the water supply. They safeguard the milk supply. They control the chemical phases of the sewage disposal plants. They test the materials purchased by the city, and they perform chemical analyses for the city's hopsitals.

"This vitally important work is done by a group which is small in terms of employee classification in our city, only about one-hundred and twenty-five in number, and the cost of placing these professional men on a parity with Federal employees will not be great. Substandard ratings for chemists will not attract nor keep the qualified chemists upon which the health and protection of the people of this city are dependent.

"Letters incorporating these findings have been sent to the Budget Director, the Civil Service Commission of New York City, and to the Mayor, but we have received no comment concerning our recommendations."

On January 20th, the following letter was received from the Director of the Budget:

To Mr. Foster D. Snell:

I wish to advise you that members of my staff are approaching the completion of a study of the present rates and duties of not only chemists but also other titles in the Scientific

Service of the classification of the New York City Civil Service Commission. The recommendation will be carefully analyzed by me for recommendation to the mayor for incorporation in the 1948-1949 Budget.

—Thomas J. Patterson
Director of the Budget.

The *New York World-Telegram*, on January 23rd, featured a story entitled, "How City's Watchdogs Save You Money". One of the featured pictures was that of the chemical laboratory of the Central Testing Bureau, where samples of material collected by the inspectors are tested. Other references were to the chemists who make the determinations for the city inspectors.

Landolt Elected Vice President

Percy E. Landolt, F.A.I.C., who has been identified with the development of lithium products for over twenty years, has been elected a director and executive vice-president of Lithium Corporation of America, Inc., and its subsidiary, Metalloy Corporation of Minneapolis, Minnesota.

Weaver Appointed Consultant

Professor Christian Weaver, F.A.I.C., formerly director of the Industrial Testing Laboratories, New York, N. Y., is now consultant in malting research and laboratory control for George J. Meyer Malt and Grain Corporation, Buffalo, N. Y.

1948 National Chemical Exposition

Dr. L. E. Clifcorn, Continental Can Company, Inc., is chairman of the Exposition Committee for the 1948 National Chemical Exposition to be held in Chicago, Illinois. Assisting him on the Advisory Committee are a number of A.I.C. Fellows: Willard H. Dow, Walter J. Murphy, R. C. Newton, Norman A. Shepard, Foster D. Snell, Robert L. Taylor, Charles A. Thomas, and E. R. Weidlein.

Oil Chemists to Meet

The American Oil Chemists' Society will meet in New York, N. Y., November 15-18, 1948. The General Committee on Arrangements includes the following A.I.C. members: General chairman, Dr. Foster D. Snell; vice chairman, Dr. J. J. Mattiello; secretary, C. P. Neidig; treasurer, Harry Burrell; finance, Dr. Donald Price; Hotels and Banquet, Dr. Warren M. Sperry, and publicity, John B. Calkin.

Moved to Oklahoma

Ora Blanche Burright, F.A.I.C., nutritionist and writer, formerly of New York, N. Y., is now at Ponca City, Oklahoma, where she has been appointed to the free-lance staff of the Oklahoma University Press. She is also preparing a manual for home economists to be published this Spring.

The Question

Looking back over twenty-five years, what advice would you give to young chemists who are starting out today?

(Asked of members who joined the A.I.C. in 1923, our founding year.)

The Answers

By William G. Bond, (retired) Holly Oak, Delaware:

"Young men today are doing all right."

By Lloyd L. Davis, Supervisor, Process Division, Continental Oil Company, Ponca City, Oklahoma:

"My best advice to the young chemist would be to broaden his education in order to be properly equipped to take his place in the professional field. A young chemist must not only be a good chemist, as well-founded in theory as in practice, but he should be well-educated in all subjects dealing with human activities. He should have appreciation of the arts, knowledge of economics, politics, and history, so that he will be able to take his place in society rather than to be just a worker in a laboratory."

Lloyd L. Davis

Dr. Harry E. Dubin, H. E. Dubin Laboratories, Inc., 250 East 43rd Street, New York 17, N. Y.:

"Join the American Institute of Chemists to maintain contact with others of same and older age groups, thus contributing, as well as receiving, benefits, both personal and material, which are bound to accrue from such membership. There should also be a constant effort to keep step with developments in the field, bearing in mind that material advancement depends to an appreciable extent upon professional ability. It should be remembered, too, that a pleasing personality goes a long way toward the achievement of success."

By Professor Albert H. Grimshaw, School of Textiles, North Carolina State College, Raleigh, North Carolina:

"Study to obtain at least a master's degree. Specialize. Be acquainted with the newer courses as well as with the older fundamental courses. Try to be a credit to the A.I.C., and continue its high ideals."

By Solomon Schneider, Senior Chemist, Navy Department, Naval Shipyard, Philadelphia, Penna.:

"Young men, planning to make chemistry their profession, should continue graduate study leading to a doctor's degree."

By Richard B. Sheridan, Superintendent of Heat Treating, J. H. Williams and Company, 400 Vulcan Street, Buffalo 7, New York:

"I would suggest that the young chemist specialize in the branch of chemistry that he likes best. I am sure he will never be out of a job long, if he knows his work thoroughly."

By Roy Wisdom, Plant Manager, Taylor White Extracting Company, Camden, New Jersey:

"Join organizations like The American Institute of Chemists in order to keep up-to-date on all new developments in the rapidly increasing knowledge of chemistry, and enter into active participation in all meetings and conventions in order to broaden the mind and viewpoint."

A. H. Grimshaw

By Leonard Wickenden, Consulting Chemist, 120 Wall Street, New York 5, N. Y.:

"Make your education as broad as possible. Don't be satisfied with being just good chemists or just good scientists. Read something else besides textbooks."

We Present the A. I. C. Chapters

The objectives of THE AMERICAN INSTITUTE OF CHEMISTS are carried out locally through its chapters. These chapters are being presented to our membership, from time to time, in THE CHEMIST.

The New Jersey Chapter

Dr. Paul Allen, Jr., *Chairman*

The New Jersey Chapter, the youngest of the twelve local chapters, was organized on October 23, 1945, by a group of twenty-one Fellows of The American Institute of Chemists. Their purpose was to create in the State of New Jersey an organization dedicated to improving the professional standing of chemists. H. E. Riley was elected as the first chairman. The National Council of The American Institute of Chemists granted a charter on November 23, 1945, and the chapter was incorporated in New Jersey on May 14, 1946.

The first public meeting featured Sidney Kirkpatrick, editor of Chemical and Metallurgical Engineering, who had returned from Bikini only a few days before. The timeliness and importance of his talk was manifested by the large audience which assembled. The next meeting presented discussions by Dr. Foster D. Snell and Allen Emery who spoke on the activities of The American Institute of Chemists and the American Chemical Society for the chemical profession.

The season was ended by a trip through the Hoffman-La Roche plant, a most welcome return to a practice which had been of necessity greatly curtailed during the war.

Our second season has already sponsored a comprehensive survey of the present and future of synthetic rubber by Dr. Harry L. Fisher. Future meetings will include a talk, open to the public, on "Science and the Government", by a member of Congress, and a trip through the Calco plant of the American Cyanamid Company.

The New Jersey Chapter has correlated its activities with those of the North Jersey Section of the American Chemical Society and the New York Chapter of the A.I.C. We have also sponsored experimental, informal, small-group, "bull-sessions", and hope to devise a formula for promoting such meetings on a continuous, stable basis.

The other officers and committee chairmen of the Chapter are: Vice chairman, Dr. R. W. Charlton; Secretary, Harry Burrell; Treasurer, John B. Rust; Councilors: J. L. Brannon, Dr. A. G. Hill, Dr. H.

MacKinney, Dr. D. L. Cottle, and V. H. Chalupski. Chairman of Program Committee, Dr. William J. Sparks. Chairman of Membership Committee, Thomas M. O'Neill, Jr.

The New Jersey Chapter's Chairman

Dr. Paul Allen, Jr., is associate professor of chemistry, Stevens Institute of Technology, Hoboken, N. J., where he teaches undergraduate and graduate courses in organic chemistry.

He was born in the Litchfield Hills of Connecticut, and though he has been fond of New England ever since, he thinks Virginia is a very nice place to live.

A thorough scholar, Dr. Allen received the A.B., A.M., and Ph.D. degrees, in organic chemistry, from Harvard University, where he studied under the late Dr. E. P. Kohler.

His first position was instructor at New York University for the academic year 1924-25. Then, desiring to broaden his experience, he served as research chemist for two industrial firms until 1929, when he re-entered the teaching profession. Before coming to Stevens Institute of Technology, he taught at St. John's College, Annapolis, Maryland; at the U. S. Naval Academy Post-Graduate School, and at Lynchburg (Virginia) College.

This unusual combination of both industrial experience (he has also served as expert witness and consultant for various companies) and teaching enables him to prepare his students for the transition between the academic life and the chemical world.

Dr. Allen's quiet yet forceful personality and his warm and understanding nature, are invaluable in securing the affection and trust of his students and, more important, their desire to learn and to do the exacting work which he expects of them.

He is a member of Alpha Chi Sigma and the American Chemical Society. He is the author of a number of articles on organic chemistry.

His hobbies happily range from the active game of tennis through the social evening of bridge and the mental concentration of chess to the relaxing, idea-stimulating, enjoyment of just loafing.

The New Jersey Chapter's program, influenced by his guidance, shows a similar sane distribution of diverse activities which develop breadth of interest and consequently more vigorous minds.

The coal operators' budget for cooperative research in 1947 totaled $447,200, or thirty-four times that of pre-war.

The mesotron, the key to the atomic nucleus, has a mass 202 times that of the electron, according to William B. Fretter and Robert C. Brode of the University of California.

Our Code of Ethics

(The American Institute of Chemists requests suggestions from its members for possible modernization of its Code of Ethics. All suggestions will be carefully considered by the Council. The present Code is printed below. Please direct your comments to The Secretary of the A.I.C., 60 East 42nd Street, New York 17, N. Y.)

The profession of chemistry has become an increasingly important factor in the progress of civilization and in the welfare of the community. Chemists are entitled to the position and authority which will enable them properly to discharge their responsibilities and render effective service to humanity. In order that the honor and dignity of the profession be advanced and maintained, The American Institute of Chemists has prepared the following code to define the rules of professional conduct and ethics, binding on its members.

1. Every individual on entering the profession of chemistry and thereby becoming entitled to full professional fellowship, incurs an obligation to advance the science and art of chemistry, to guard and uphold its high standard of honor, and to conform to the principles of professional conduct.

2. It is the duty of a Chemist to bear his part in sustaining the laws, institutions and burdens of his community.

3. The Chemist shall not knowingly engage in illegal work or cooperate with those who are so engaged.

4. A Chemist shall carry on his professional work and act in a strict spirit of fairness to employers, contractors and clients, and in a spirit of personal helpfulness and fraternity toward other members of the chemical profession.

5. He shall refrain from associating with or allowing the use of his name by any enterprise of questionable character.

6. He shall advertise only in a dignified manner, being careful to avoid misleading statements.

7. He shall cooperate in upbuilding the profession by exchanging general information and experience with his fellow chemists and by contributing to the work of technical societies and the technical press, where such information does not conflict with the interests of his client or employer. It is very desirable that the first publication regarding inventions or other scientific advances be made through the technical societies and technical publications and not through the public press. Care shall be taken that

credit for technical work be attributed as far as possible to the real authors of the work.

8. If in his opinion, work requested of him by clients or employers seems to present improbability of successful results, he shall so advise before undertaking the work.

9. He shall be conservative in all estimates, reports, testimony, etc., and especially so if these are in connection with the promotion of a business enterprise.

10. He shall not accept compensation, financial or otherwise, from more than one interested party without the consent of all parties concerned and shall not accept commissions from outside parties on sales to his client or employer without their knowledge. He is, however, in no way debarred from accepting employment from more than one employer where there is no conflict of interests.

11. He shall not use any unfair, improper or questionable methods of securing professional work or advancement and shall decline to pay or accept commissions for securing such work.

12. He may use all honorable means in competition to secure professional employment but shall not, by unfair means, injure directly or indirectly, the professional reputation, prospects or business of a fellow chemist and shall not attempt to supplant a fellow chemist after definite steps have been taken toward the latter's employment.

13. He shall not knowingly accept employment by a client or employer while the claim for compensation or damage, or both, of a fellow chemist previously employed by the same client or employer and whose employment has been terminated, remains unsatisfied, or until such claim has been referred to arbitration or issue has been joined at law, or unless the chemist previously employed has neglected to press his claim legally.

14. He shall be diligent in exposing and opposing such errors and frauds as his special knowledge enables him to recognize.

15. Any infractions of these principles of professional conduct, coming to his attention, shall be reported to the Ethics Committee of The American Institute of Chemists.

16. He shall not attempt to compete with a fellow chemist on the basis of professional charges, by reducing his usual charges in order to underbid after being informed of the charges named by the competitor.

17. He shall not accept any engagement to review the professional work (except journal articles and similar scientific publications and in litigation) of a fellow chemist without the knowledge of such chemist or unless the connection of such chemist with the work has been terminated.

18. When undertaking work for a client or employer, he should enter

into an agreement regarding the ownership of any and all data, plans, improvements, patents, designs or other records which he may develop or discover while in the employ of such a client or employer. In the absence of a written understanding the following principles are held to apply:

(a) If a chemist uses information obtainable only from his client or employer which is not common knowledge or public property, any results in the form of designs, plans, inventions, processes, etc., shall be regarded as the property of the employer.

(b) If a chemist uses his own knowledge or information or data which by prior publication or otherwise are public property, then the results in the form of designs, plans, inventions, processes, etc., remain the property of the chemist and the client or employer is entitled to their use only in the case for which the chemist was retained.

(c) All work and results accomplished by the chemist outside of the field for which he was employed or retained are the property of the chemist.

(d) Special data or information obtained by a chemist from his client or employer or which he creates as a result of such information, are to be considered confidential, and while it is ethical to use such data or information in his practice as forming part of his professional experience, its publication without permission is improper.

19. He shall as far as possible in consulting work fix fees at a point high enough to warrant complete and adequate service. Unreasonably low charges for professional work tend towards inferior and unreliable work. In fixing fees it is proper for him to consider:

(a) The time and labor involved, the novelty and difficulty of the matter and the experience and skill necessary.

(b) Whether the employment precludes other employment in similar lines or will involve the loss of other business while engaging in the particular work.

(c) Customary charges of chemists for similar services.

(d) The magnitude of the matter involved and the benefits resulting to the client from the services.

(e) The character of the employment, whether casual or for an established and constant client.

20. While it is desirable that chemists engaged in teaching and research should be permitted to use their special knowledge and skill in direct service to individual clients, it is prejudicial to the welfare of the profession for such services to be rendered at rates which ignore the ordinary costs of equipment, supplies and overhead expenses.

21. Having established a fair fee and billed same to a client, he should oppose any effort of a client to have such fee reduced without real and

sufficient cause. Wherever compatible with self-respect and the right to receive a reasonable recompense for services rendered, controversies with clients regarding compensation are to be avoided. There should, however, be no hesitation to apply to the courts for redress to prevent injustice, imposition or fraud.

Commercial Laboratories Elect Officers

The American Council of Commercial Laboratories announces the following officers for 1948: President, Bernard L. Oser, F.A.I.C., of Food Research Laboratories, Inc., Long Island City, N. Y.; Vice president, Gustavus J. Esselen, F.A.I.C., Esselen Research Corporation, Boston, Mass.; Vice president, Roger W. Truesdail, F.A.I.C., Truesdail Laboratories, Los Angeles, Calif.; Secretary, Daniel E. Douty, U. S. Testing Laboratory, Hoboken, N. J., and Treasurer, Alvin C. Purdy, Bull and Roberts, New York, N. Y.

Gustave T. Reich, F.A.I.C., consulting chemical engineer, was a speaker at the Twenty-first Convention of the Sugar Technologists of Cuba, held in Havana, Cuba. His subject was, "Molasses—from which valuable products, such as yeast, solid carbon dioxide, fertilizer, and decolorizing carbon can be obtained in conjunction with the production of ethyl alcohol."

Murphy Awarded Honorary Degree

Walter J. Murphy, F.A.I.C., editor of *Chemical and Engineering News* and *Industrial and Engineering Chemistry*, has been awarded the honorary D.Sc. degree by Centre College, Danville, Kentucky. The citation reads in part, ". . . Centre College . . . is proud to recognize your accomplishments in the important work of making known and correlating, through your editorial work and writing, the vast amount of valuable research in the area of your profession."

Luckens in Arizona

Mark M. Luckens, F.A.I.C., has recently been discharged from the Sanitary Corps, U. S. Army, with the rank of Major. He is now director of quality control, research and development, Arizona Cooperative Date Producers Association, Chandler, Arizona. He is also opening laboratories and offices to do consulting work in food technology, environmental sanitation, and industrial hygiene in the southwestern United States.

Dr. John A. Dienner, F.A.I.C., partner, Brown, Jackson, Boettcher, and Dienner, Chicago, Ill., has been appointed a member of the U. S. Patent Office Advisory Committee to assist in improving Patent Office procedure and system.

Necrology

Clark S. Robinson

Clark S. Robinson, Colonel, Ordnance Department, U. S. Army, Massachusetts Institute of Technology, Cambridge, Mass., died May 23, 1947, at the age of fifty-nine.

He was born at Fall River, Massachusetts, and studied at Massachusetts Institute of Technology from which he received the master's degree in 1915. From that date until his death, he served as instructor in chemical engineering at M.I.T., also as consultant for Cities Service Oil Company, and Western Cartridge Company. In 1942 he became Lt. Colonel of the Ordnance Department, and then Colonel, directing ordnance research at the Chemical Engineering Department of M.I.T. He was the author of numerous papers on engineering subjects and non-technical subjects, and co-author or author of the following books: "Elements of Fractional Distillation," "Recovery of Volatile Solvents," "Evaporation," "Differential Equations in Applied Chemistry," "Recovery of Vapors," "Thermodynamics of Firearms," "Explosives Chemistry for Safety Engineers," and "Explosions". He also held several patents.

Colonel Robinson became a Fellow of *The American Institute of Chemists* in 1944.

Atomic Energy Exhibit

The Brookhaven National Laboratory is sponsoring a two and one-half month showing of an Exhibit on Atomic Energy at the American Museum of Natural History, New York, N. Y. The exhibit, which opened January 21st, includes a "model atomic pile" (designed by Dr. John R. Dunning of Columbia University), where visual and sound effects are caused by the actual break-up of uranium atoms. A radium-beryllium source valued at $10,000 is the neutron source for this pile.

Hayden Chemical Corporation, by recent purchase, now owns more than nine-nine per cent of the stock of American Plastics Corporation, Bainbridge, N. Y., producers of casein plastics. Simon Askins, formerly assistant secretary of American Plastics, is now president.

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Silverman Represents Ceramic Society

Dr. Alexander Silverman, F.A.I.C., head of the Department of Chemistry, University of Pittsburgh, is the American Ceramic Society's representative on the Division of Chemistry and Chemical Technology of the National Research Council. He was one of fifteen delegates appointed by the National Research Council and National Academy of Sciences to the International Union of Chemistry meetings in London in July. He also represented these at the International Congress of Chemistry meeting which was held concurrently. At the latter he presented a paper, "Some Recent Developments in American Glass Manufacture."

Baeza Discusses Employment

Walter J. Baeza, F.A.I.C., president of Industrial Research Company, New York, N. Y., addressed the Chemical Society of New York University, December 4th on "Placement Opportunities for Chemists." In spite of evidence of recession in many lines, the rate of finding employment for chemists maintains a high level. Placements per month run over eighty per cent of total applications in the Regional Clearing House of the American Chemical Society, and salaries remain at a good level with a slight tendency toward further improvement.

Bogert Adviser to Evans Research

Col. Marston T. Bogert, F.A.I.C., emeritus professor of chemistry, Columbia University, has been appointed to serve as senior scientific advisor of Evans Research and Development Corporation, 250 East 43rd Street, New York, N. Y.

Dr. Gustav Egloff, F.A.I.C., has been voted an Honorary Member of the International Mark Twain Society, for his contribution to literature.

Dr. Egloff was appointed as a member of the U. S. Patent Office Advisory Committee. The functions of this Committee are to assist in improving Patent Office procedure and the Patent system in general.

Bernstein Now Research Director

Isador M. Bernstein, F.A.I.C., is now research director for the Gotham Ink and Color Company, Long Island City, New York.

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JAMES R. WITHROW, *At-Large*

January Meeting

The 243rd meeting of the National Council of THE AMERICAN INSTITUTE OF CHEMISTS was held January 13th at 52 East 41st Street, New York, N. Y. Vice President Joseph Mattiello presided during the first part of the meeting. The following officers and councilors were present: Eduard Farber, H. L. Fisher, Lawrence Flett, F. A. Hessel, D. B. Keyes, R. E. Kirk, J. Mattiello, J. M. McIlvain, J. J. Miskel, E. H. Northey, F. D. Snell and L. T. Work. K. M. Herstein and V. F. Kimball were present.

The minutes of the previous meeting were accepted. The Treasurer's report was accepted.

A letter was presented from Mrs.

Howard S. Neiman, in which she expressed her deep appreciation of the resolutions which the Council had prepared concerning the late Mr. Neiman.

A letter from the Secretary of the Los Angeles Chapter of the A.I.C. was read, in which he stated that that Chapter had gained new members and that "there is a continued vigorous interest in the Institute and its program, and we look forward to a very stimulating and eventful year in 1948 at the Los Angeles Chapter."

Dr. Foster D. Snell, president, then took the chair and presided for the balance of the meeting.

A letter was presented from Dr. James F. Veltman, chairman of the Western Pennsylvania Chapter, informing the Council that he has moved out of the Pittsburgh area and has turned over the Chapter papers to the vice chairman, Dr. M. F. Dull.

Dr. Snell presented a letter which he had received from the Association of the Bar of New York, and the Secretary was requested to attend the meeting to be held by the Association on January 19th, to act as observer and to report his recommendations to the National Council at its next meeting.

An article which appeared in the Newark Evening News, entitled "NLRB Decides Chemists not Supervisors" was discussed. Professor Paul M. Giesy was appointed to obtain further information about the conditions under which this decision was made.

A letter from Mr. Blain O. Pray was read and discussed.

Dr. Mattiello, chairman of the Annual Meeting Arrangements Committee, reported that arrangements for the annual meeting, silver anniversary celebration, and medal award, are in progress.

It was decided to hold the next meeting of the National Council on February 10th instead of February 17th as previously announced.

Dr. Lincoln T. Work, chairman of the committee to select a memento for those elected in 1923 who are still with us, discussed several suggestions.

A letter was presented suggesting that the A.I.C. Code of Ethics be reviewed to determine whether revisions were necessary. The matter was referred to Dr. Donald B. Keyes, who will solicit suggestions from the councilors. The editor was asked to publish in THE CHEMIST a request that members of the A.I.C. also submit their suggestions.

The following new members were elected:

FELLOWS

Berke, Philip A.
President, Leberco Laboratories, 123 Hawthorne St., Roselle Park, N. J.

Dubpernell, George
Manager, Waterbury Laboratories, United Chromium, Inc., Box 1229, Waterbury, Conn.

Lineken, Edgar Elwyn
Research Chemist, Calco Chemical Division, Bound Brook, N. J.

Molomut, Norman
Director, Biological Laboratories, Inc., 16 Clinton St., Brooklyn, N. Y. *Supervisor of Research,* M. & S. Research Foundation.

O'Leary, John J.
Regional Manager, The Solvay Process Division, Allied Chemical & Dye Corp., P. O. Box 98, Ironton, Ohio.

Lee, Sidney Phillip
Associate Director (Vice President) Dallas Laboratories, 2500 South Ervay, Dallas, Texas.

Thomas, Adrian
Chief Chemist, Huron Milling Company, Harbor Beach, Mich.

MEMBERS

Henick, Albert S.
Assistant Chemist, American Meat Institute Foundation, 947 East 58th St., Chicago 37, Illinois.

Johnson, Manfred Leroy
Director, Commercial Laboratories, Division of Vitamin Technologists. 947 Maple Avenue, Los Angeles, California.

Perow, Robert Hart
Quality Control Supervisor, Johns-Manville Products Corp., P. O. Box 1450, Long Beach 1, Calif.

Sherrill, Joseph Cyril
Instructor in Chemistry, The Pennsylvania State College, State College, Pennsylvania.

National Council Meetings

Council meetings of The American Institute of Chemists will be held at The Chemists' Club, 52 East 41st Street, New York, N. Y., on the following dates:

February 10th

March 16th

April 13th

May 7th

ASSOCIATES

Carleton, Hugh MacLennan
Chemical Engineer, Koppers Company, Inc., Kearny, N. J.

Strong, Annette
Chemist, Golden West Milling Co., 1st and Terry, Longmont, Colo.

RAISED TO FELLOWS

Hicks, Glenn H.
Technical Director, Acme White Lead & Color Works, 8250 St. Aubin Street, Detroit, Michigan.

Saffir, Jacob A.
Research, Saffir Research Laboratories, 415 S. Berendo Street, Los Angeles 5, California.

There being no further business, adjournment was taken.

For Your Library

Textile Fibers

By J. M. Matthews and H. R. Mauersberger. Fifth Edition. 1133 *pp.* 6″ x 9½″. *John Wiley and Sons, Inc.* 1947. Price: $12.50, Canada $15.00

Ever since the appearance, in 1904, of the first edition of this book, it has been a standard publication for both technicians and laymen in the textile industry. Repeated calls for this book have resulted in revision and enlargement of the previous edition by an editorial staff of forty-six leading textile technologists and scientists. While all essential features of previous editions have been retained, valuable information on new material and recent technical knowledge have been added, thus making the fifth edition of Matthew's *Textile Fibers* the most complete story of the history, technique, and construction of both natural and man-made fibers. Its twenty-five chapters cover every phase of fibers, including minerals or inorganic fibers; new synthetic fibers; fur fibers; hair fibers, as well as the more familiar rayon, nylon, and other common synthetic filaments.

The book is printed on paper selected for hand usage, and it is adequately bound for protection of a volume of its size. It is recommended for its complete coverage of the textile fiber, and will be a valuable addition to any corporation or private library.

—W. F. Leggett.

Annual Review of Microbiology

Volume I. vi+404 pages. C. E. Clifton, editor; S. Raffel and H. A. Barker, associate editors. Annual Reviews, Inc. Stanford University. Calif. 1947. *Price* $6.00.

This volume contains seventeen reviews written by seventeen different authors. All of the articles offer fascinating reading. However, the following should be of interest to chemists: Bacterial Metabolism by D. D. Woods; Nitrogen Metabolism by E. F. Gale; Industrial Fermentations by M. J. Johnson; Quartenary Ammonium Compounds by O. Rahn and W. P. Van Eseltine; Antibiotics by R. G. Benedict and A. F. Langlykke; Chemotherapeutic Agents by E. M. Lourie; Immunochemistry by H. P. Treffers; Some Aspects of Active Immunization by J. Freund, and Respiratory Viruses by T. Francis, Jr.

Gale's review (on page 155) contains an important message to the microbiologist: " . . . the time has come for the microbiologist to concern himself seriously with the organization of biochemical events within the living cell, and to attempt an integration of facts learned from enzymes and metabolism experiments in-

to an understanding of the cell as a biological unit rather than as an interesting safe-deposit for enzymes."

The quality of material presented in Volume I of this series suggests that this publication should be of immense value to chemists interested in microorganisms.

—Henry Tauber, F.A.I.C.

The Chemistry and Physics of Organic Pigments

By Lyde S. Pratt, John Wiley and Sons, 1947. 360 *pp.* 6¼" *x* 9¼" $6.00.

The contents of this book include chapters on History, Color and Chemical Structure, Color and Physical Structure, Raw Materials, Intermediates, Pigments from Natural Organic Colors, Synthetic Organic Pigments; Testing of Pigments, Identification of Organic Pigments, and Pigment Types and properties.

The chemistry of dyestuffs and derived pigments is well summarized. The pigments are usually lakes. Their preparation is well covered, and possible advances and improvements are suggested. The bleeding of colors could have been more adequately treated, and the use of the colloid mill for dispersion is but lightly discussed. The book could have been improved by the addition of color plates, particularly as examples of the textual material.

—Dr. John A. Steffens, F.A.I.C.

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The Writer-Speaker Handbook
By Bethel Gilliam. 174 *pp.* 5⅜" *x* 7¾". *Handbook Publishers, Inc.* Price $2.50.

When one first opens this book, the intervening years will vanish, while long-forgotten sensations of grammar school days return. Here are many pages devoted to the fundamental parts of speech, with examples of their correct and incorrect usage. However, when one reads more carefully, there arises a sense of amazement that so many minor errors in the use of English are customary, even among well-educated persons. Some are so familiar to the ear that the correct form of expression sounds stilted.

Following the elemental discussion of the parts of speech, there are chapters on punctuation, syllabication, compilation of a bibliography, speech (including words frequently mispronounced), public speaking, and vocabulary building. Though each chapter is necessarily brief, an excellent selection of basic material has been made, and a few good references are made to other books for more complete study.

Vivid expression is not stressed, and the correct form of expression given in the book is sometimes much weaker than the incorrect, common form: "Incorrect: He *certainly* is a good speaker. Correct: He is a *very* good speaker." This use of the adverb "very" to confer emphasis is a weak and ineffective choice. In fact, a sentence can sometimes be strengthened by deleting the "very's" from it.

The introductory paragraph on the book's jacket aptly introduces it: "A handy reference work for those who appreciate the importance of correct expression in writing and speaking. The English language can best be utilized by those who give careful consideration to the meanings of words and to their correct formation into sentences." In addition, this book is exceptionally well-indexed. It is recommended as a convenient handbook for busy chemists who want a quick review of the English language.

—V. F. K.

Phenoplasts
Their Structure, Properties, and Chemical Technology. By T. S. Carswell. Interscience Publishers, Inc. 1947. 279 *pp.* 6" *x* 9". $5.50.

This volume is a survey of the results of later investigations on the phenoplasts, chemistry of formation, physical structure, mechanical, thermal, and electrical properties, alone and with fillers and as laminates. A chapter by Donald S. Herr on Ion-exchange Resins and one by Carl H. Whitlock on Molding Technique rounds out the treatment. This is Volume VII of the High Polymer Series and is well done.

—Dr. John A. Steffens, F.A.I.C.

Thermodynamics

Part II of Chemical Process Principles. By Olaf A. Hougen and Kenneth M. Watson, John Wiley & Sons, Inc. 1947. 412 *pp.* Price $5.00.

Any new book on the subject of thermodynamics is welcome in this country, where the most popular treatise on thermodynamics has been in print for twenty-four years, without a single revision, even to the addition of more recent bibliographic references.

The subject volume, as the title indicates, is devoted to thermodynamics as Part II of the book "Chemical Process Principles." (A combined volume to include Parts I, II, and III, is in preparation.) The pagination, chapter headings, and index, are integral for all three volumes. Division of the book into three volumes is an admirable convenience for the reader. The excellent style, execution, make-up, and typography, conform to the standard of an earlier volume by these authors, "Industrial Chemical Calculations." This critic notes with pleasure that thermodynamic material has not merely been transferred from the earlier book, but that it has been rewritten. The excellent discussion of Thermodynamic principles should spare most neophytes from their customary terror of the recondite subject of thermodynamics.

While intended basically as a textbook, it is suitable for reference by the chemist and chemical engineer who has had only infrequent occasion to apply thermodynamics to his problems. It requires no companion volume to interpret its use, since it is well-larded with illustrations to show such application: consequently it should do much to increase the application of thermodynamics to the solution of industrial process problems.

While the book contains considerable thermodynamic data, particularly in the section devoted to methods for determining thermodynamic properties from molecular structure, for other data in practical application the reader will generally draw on other sources, particularly for charts of thermodynamic properties which are presented on a scale too small to permit a high degree of accuracy.

The subject volume with its companion volumes should be on the book shelf of every chemist and chemical engineer interested in chemical process problems.

—Henry Eckhardt, F.A.I.C.

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Booklets

"Automatic Vacuum and Pressure Control. Cartesian Manostat." Bulletin, illustrated, describing the Model No. 5 Industrial Cartesian Manostat. Request it from the Emil Greiner Company, 161 Sixth Avenue, New York 13, N. Y.

"World Chemical Developments, 1940-46, Part I." Summary covers most of the countries of Europe and the British Commonwealth. Published by the Office of International Trade, U. S. Department of Commerce. Available from the Superintendent of Documents, Washington 25, D.C., for thirty cents.

"Application of Electric Conversion Equipment to the Electrochemical Industry." 33 pp. 8½" x 11". Illustrated. Covers the broad aspects of the use of modern mercury arc rectifier conversion equipment in the zinc, magnesium, chlorine, aluminum, copper, and the mining and smelting industries. Published by the American Institute of Electrical Engineers, 33 West 39th Street, New York 18, N. Y. Price $0.80.

"New Magnetic Stirrers", descriptive material on Magne-Mix and Aero-Magne-Mix. Request information from Precision Scientific Company, 3737 W. Cortlandt Street, Chicago 37, Ill.

A.I.C. Presentation

A leaflet describing some of the activities of The American Institute of Chemists is available, without charge, on request to The Secretary of the A.I.C., 60 East 42nd Street, New York 17, N. Y.

"Directory of Commercial and College Laboratories", compiled by the National Bureau of Standards. Available from the Superintendent of Documents, Washington 25, D. C., as NBS Miscellaneous Publication M187, at thirty cents per copy.

"The Times Survey of the British Scientific Instrument Industry." Oct. 1947. 12" x 17½". 48 pp. Price 1 shilling. Contains 34 illustrated articles on many phases of the industry. Produced by *The Times* in cooperation with the Scientific Instrument Manufacturers' Association of Great Britain, Ltd., 26 Russel Square, London, W.C. 2, England.

"Trends in Industrial Research and Patent Practices", 79-page booklet containing "a survey of the general patterns in research activities and patent policies within different types of industry." Published by National Association of Manufacturers, 14 West 49th Street, New York 20, New York.

"Classified Directory," issued by the Association of Consulting Chemists and Chemical Engineers, 50 East 41st Street, New York 17, N. Y. Available without cost upon request giving source of reference, name, name of company, and complete address, including postal zone number.

"The Application of Microscopy to the Textile Industry", Calco Technical Bulletin No. 796, by Dr. G. L. Royer, F.A.I.C., assistant director of physical research, Calco Chemical Division, American Cyanamid Company. Request it from Calco Sales Representatives, or from the Advertising Department of the company at Bound Brook, New Jersey.

"An Award for Chemical Engineering Achievement to Merck & Company, Inc., presented by *Chemical Engineering,* Dec. 3, 1947." Brochure describing Merck's achievements in the development and production of streptomycin and other new medical products. Reprinted from *Chemical Engineering,* November, 1947, by Merck and Company, Rahway, New Jersey.

"Price List" of specialty apparatus and new chemical reagents manufactured by The G. Frederick Smith Chemical Company, P. O. Box 1611, Columbus, Ohio.

"Synthetic Fibers", a catalog of translations of I. G. Farben patents. Available from Research Information Service 509 Fifth Avenue, New York 17, N. Y.

"Technical and Scientific Books. 1948.". Catalog by Chemical Publishing Company, Inc., and Remsen Press, 26 Court Street, Brooklyn 2, N. Y.

Book Announcements

"Market and Marketing Analysis", by Myron S. Heidingsfield, Ph.D., and Albert B. Blankenship, Ph.D. Price $4.00. Henry Holt and Company, 257 Fourth Avenue, New York 10, N. Y.

"Marketing by Manufacturers". 639 pp. Edited by Charles F. Phillips, Ph.D. Bates College. $6.00. Published by Richard D. Irwin, Inc., 332 South Michigan Ave., Chicago 4, Illinois.

"The Chemical Analysis of Foods". 317 pp. By Henry E. Cox, Ph.D., D.Sc. $8.00 plus postage unless order is accompanied by remittance. Published by The Sherwood Press, Box 552, Edgewater Branch, Cleveland 7, Ohio.

"Flameproofing Textile Fabrics". 430 pp. Edited by Robert W. Little, Major, Q.M.C. with staff of special-

ists. $6.75. Reinhold Publishing Corporation, 330 W. 42nd Street, New York 18, N. Y.

New Industrial Films

"Science in Resin Development", a 20-minute, 16 mm., sound and color movie is available for showing to industrial and educational groups without charge. Requests should be addressed to the Protective Coating Products Department, American Cyanamid Company, 30 Rockefeller Plaza, New York 20, N. Y.

"Water, Water Everywhere," 16 mm. sound movie in color, describing water demineralization by ion exchange. Available for showing without charge to industrial firms, societies, and universities. Address requests to Ion Exchange Products Department, American Cyanamid Company, 30 Rockefeller Plaza, New York 20, N. Y.

Suggested for Professional Reading

Dr. Gustav Egloff, F.A.I.C., recommends:

"Some Engineering Truths and Their Economic Consequences," address by Dr. Roland P. Soule, vice president in charge of research and engineering, American Machine and Foundry Company. Reprinted by Aluminum Company of America. "Every company has its specialists. . . . But how many today have even one man working single-mindedly and whole-heartedly for uninterrupted growth in the country's total production—which is the one thing most important to every company's continued success in the coming years? Here is a new responsibility that must be shouldered by every company which realizes it cannot prosper unless the whole country prospers . . ."

"Illusion of Success", by W. T. Nichols, Westvaco Chlorine Products Corporation. Reprint from Vol 43, No. 3, of *Chemical Engineering Progress*. "I urge each one of you to look beyond your present situation. . . . If you are so fortunate as to be well adjusted now and can stay that way, you will arrive at fifty a true success. If you should discover that you are not well adjusted, you can help yourself if you will. What you do now will bear fruit many years hence."

"Management as a Tool of Production", by Donald F. Hopkins. Article in *Manufacturing Chemist and Manufacturing Perfumer*, (London) October, 1947.

Dr. Martin Meyer, F.A.I.C., chairman of the Department of Chemistry, Brooklyn College, addressed the Pratt Institute Chemical Society, on December 3rd, on the "Chemistry of Rockets."

Chemical Condensates

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"William Harvey," according to the *New England J. Med.*, "would never have discovered the circulation of the blood if all he had done was to punch-card the data of Galen. The machine has not been built which can substitute for the human reasoning used in performing a useful . . . experiment. When it is built, then perhaps man can allow his brain to atrophy."

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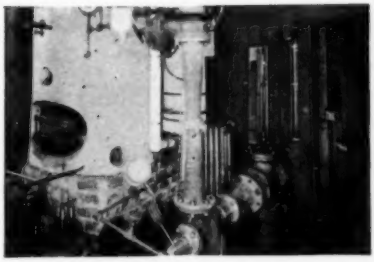

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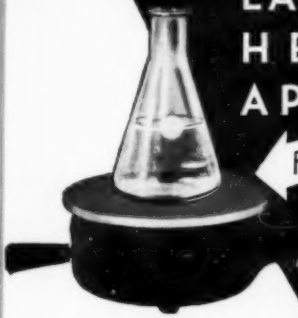

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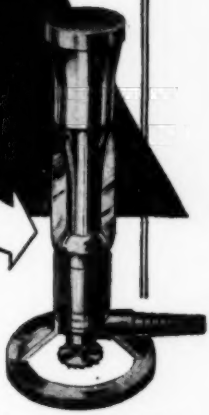

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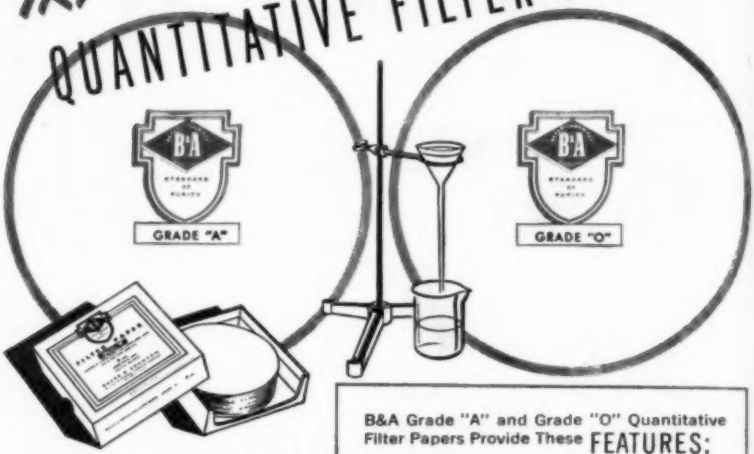

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